

NON-INVASIVE BLOOD GLUCOSE MONITORING BY INTERFEROMETRYAbstract of the Disclosure

The glucose concentration in the bloodstream is directly correlated to the concentration of glucose in the aqueous humor. Furthermore, variation in the glucose concentration in the aqueous humor will cause like variations in its index of refraction. Thus, by measuring the refractive index of the aqueous humor, the glucose concentration in the blood can be determined.

The refractive index of the aqueous humor can be measured by interferometry. In various embodiments of the invention that employ interferometry, two beams may be directed onto the eye and caused to interfere, thereby producing a fringe pattern. The fringe pattern may be analyzed to determine the index of refraction of the aqueous humor in the eye and the glucose concentration therein. The glucose level in the blood can be ascertained from this information.